

(19) 日本国特許庁 (J P)

(12) 公開特許公報 (A)

(11) 特許出願公開番号

特開平10-80968

(43) 公開日 平成10年(1998) 3月31日

March 31, 1998

(51) Int.Cl.*	識別記号	序内整理番号	F I	技術表示箇所
B 3 2 B	5/02		B 3 2 B 5/02	Z
A 6 1 F	13/54		A 6 1 F 5/44	H
	5/44		A 4 1 B 13/02	E
	13/15		A 6 1 F 13/18	3 1 0 Z

審査請求 有 請求項の数 8 O L (全 4 E D)

(21) 出願番号 特願平9-196233
 (62) 分割の表示 特願平1-12597の分割
 (22) 出願日 平成1年(1989) 1月21日

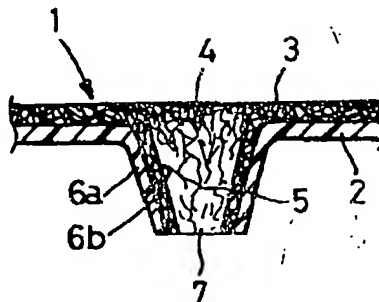
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(54) 【発明の名称】 衛生物品用表面シート

(57) 【要約】

【課題】 肌ざわり及び体液透過性を良好にした生理用ナプキン等の衛生物品用表面シートの提供。

【解決手段】 生理用ナプキン等の衛生物品用表面シートは、熱可塑性フィルム層2およびフィルム層2の上面に溶融接合されている熱可塑性繊維を含有する繊維層3からなり、フィルム層2及び繊維層3には開口4が所定間隔で配列されているとともに、開口4の周縁に連続してフィルム層2及び繊維層3の下面から下方向へ延出する毛細管5が形成されている。



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【特許請求の範囲】

【請求項1】シート基材が熱可塑性フィルム層および該フィルム層の上面に溶融接合されている熱可塑性繊維を含有する繊維層からなり、前記シート基材には開口が所定間隔で配列されている衛生物品用表面シートにおいて、前記開口の周縁に連続して前記シート基材の下面から下方向へ延出する毛細管が形成されていることを特徴とする前記表面シート。

【請求項2】前記毛細管がその基端からその先端へ次第に小径になるように延びている請求項1に記載の表面シート。

【請求項3】前記毛細管がその基端からその先端へ同径で延びている請求項1に記載の表面シート。

【請求項4】前記毛細管がその基端からその先端へ次第に大径になるように延びている請求項1に記載の表面シート。

【請求項5】前記フィルム層が親水性を有している請求項1に記載の表面シート。

【請求項6】前記繊維層が親水性を有している請求項1に記載の表面シート。

【請求項7】シート基材が熱可塑性フィルム層および該フィルム層の上面に溶融接合されている熱可塑性繊維を含有する繊維層からなり、前記シート基材には開口が所定間隔で配列されている衛生物品用表面シートにおいて、前記開口の周縁に連続して前記シート基材の下面から下方向へ延出する前記繊維層で毛細管が形成されていることを特徴とする前記表面シート。

【請求項8】前記繊維層が親水性を有している請求項7に記載の表面シート。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】本発明は、衛生物品用表面シートに関し、さらに詳しくは、生理用ナプキン、使い捨てオムツなどの衛生物品の着用時に、着用者の肌が当接する該物品の表面を形成するシートに関する。

【0002】

【従来技術】従来、特公昭57-17081において、衛生物品の表面シートとして、プラスチックフィルムに所定間隔で先細毛細管が形成されたものが知られている。しかし、この表面シートは、その素材がプラスチックフィルムであることから、フィルム光沢を呈し、肌にフィルム感触を与える。また、肌にびったり付着しているベタツキを与えると同時に、肌と表面シート間の通気性や、皮膚呼吸を妨げるなどの問題がある。

【0003】特開昭55-146738においては、前記問題を少なくするため、表面シートの上面を凹凸状にし、開口模様を不規則にするなどの手法により、上面に繊維状外観を付与することが開示されている。

【0004】

【発明が解決しようとする課題】特開昭55-1467

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38に開示されている表面シートは、プラスチックフィルムだけを素材とする点において特公昭57-17081の表面シートと本質的に異なり、繊維状外観を付与するには限界がある。この表面シートは、フィルム光沢をなくすことには或る程度成功しているといえようが、肌にフィルム感触を与えることはいかならない。いわゆるベタツキや、通気性や、皮膚呼吸などの改善についての課題もいまだ十分に解決されているとはいえない。

【0005】本発明は、熱可塑性フィルム層の上面に、肌に当接する繊維層を溶着して複合化するとともにこれらに所定間隔で体液を透過するための開口を配列することにより、前記問題を解決することができる表面シートを提供することを主たる目的とする。

【0006】

【課題を解決するための手段】衛生物品用表面シートに係る本発明は、シート基材が熱可塑性フィルム層および該フィルム層の上面に溶融接合されている熱可塑性繊維を含有する繊維層からなり、前記シート基材には開口が所定間隔で配列されている衛生物品用表面シートにおいて、前記開口の周縁に連続して前記シート基材の下面から下方向へ延出する毛細管が形成されていることを特徴とする。

【0007】本発明は、前記毛細管がその基端からその先端へ次第に小径になるように延びている点、前記毛細管がその基端からその先端へ同径で延びている点、前記毛細管がその基端からその先端へ次第に大径になるように延びている点、及び、前記フィルム層及び繊維層が親水性を有している点の構成を含む。

【0008】また、本発明は、前記毛細管が実質的に前記繊維層だけから形成されている態様も含む。この態様の場合でも、前記繊維層が親水性を有していてもよい。

【0009】

【作用】前記構成を有する表面シートは、内部に吸液性コアを有する衛生物品の表面を形成するために使用される。この使用状態においては、体液が各開口を透過して衛生物品の内部に吸収される。繊維層は着用者の肌にびったり付着することなく当接し繊維布感触を与えると同時に、皮膚と表面シートとの間で通気がなされ、皮膚呼吸を妨げない。フィルム層は吸液性コアに吸収された体液の繊維層への逆流を阻止する機能を発揮する。フィルム層と繊維層とから形成されている毛細管を有する表面シートにおいては、それらが毛細管を補強し保形する機能を発揮する。

【0010】

【発明の実施の態様】図面を参照しながら、本発明に係る表面シートの実施態様について説明すると、以下のとおりである。

【0011】図1は、表面シート1の平面図、図2は、

図1の表面シート1の部分拡大断面図である。表面シート1の基材は、熱可塑性フィルム層2と、熱可塑性繊維を含有する繊維層3とからなる。シート基材、すなわち、フィルム層2及び繊維層3には開口4が所定間隔で配列されているとともに、開口4の周縁に連続してフィルム層2及び繊維層3の下面から下方向へ延出する毛細管5が形成されている。毛細管5は開口4から下端開口7へ径が次第に小さくなるテーパに形成されている。

【0012】図3は、表面シート1の別の態様を示し、図2に相当する断面図である。毛細管5は、開口4から下端開口7までが実質的に同じ径に形成されている。

【0013】図4は、表面シートのさらに別の態様を示し、図2に相当する断面図である。毛細管5は、開口4から下端開口7へ径が次第に大きくなるテーパに形成されている。

【0014】毛細管5を形成しているフィルム層2及び繊維層3の周壁6a、6bの肉厚は、表面シート1の非開口部であるリブのフィルム層2および繊維層3のそれぞれの肉厚よりも小さくなっている。また図4の毛細管5を形成しているフィルム層2の周壁6a、6bは、下端開口7へ次第に肉薄になっているとともに、下端開口7とその近傍には実質的に管軸方向へ延びる幾条かのしわを有する。

【0015】図5は、表面シート1のさらに別の態様を示し、図2に相当する断面図である。毛細管5の断面形も図2のそれとほぼ同じである。ただし、図5の毛細管5は、主として繊維層3から形成され、フィルム層2が繊維層3の開口4の下面該周縁に短い管を形成している。図5の毛細管5における繊維層3も下端開口7へ次第に肉薄になっている。図示してないが、繊維層3による毛細管5は、図3、図4のそれと同じ断面であってもよい。

【0016】各開口4の合計占有割合はフィルム層2または繊維層3の30～70%、径は0.2～2mm、長さ(高さ)は0.50～5mm、開口間におけるリブの幅は0.5～2.5mmであることが好ましい。

【0017】熱可塑性フィルム層2の素材としては、ポリエチレン、ポリプロピレンなどのポリオレフィン系合成樹脂が最も好ましいが、その他の合成樹脂、たとえば、ポリエステル、ナイロン、EVAなども用いることができる。フィルム層の厚さは、一般的には7～30μである。フィルム層の素材には、濡れ特性を繊維層3のそれよりも大きくするため、若干量、例えば0.50～1重量%の親水性付与剤を含有させてもよい。この親水性付与剤としては、親水性表面活性剤としてのポリエチレングリコールなどのほか、CMC、PVAなども用いることができる。

【0018】繊維層3の繊維の配向は特に問われず、その配向は、バラレル、ランダム、これらの混合のいずれであってもよい。しかし、表面シート1の長さ方向、換

言すると、表面シートを適用する衛生物品の長さ方向へ、例えば、30%以上の繊維が配向していると、同方向へ体液が流動拡散する傾向が強められる。

【0019】繊維層3の素材としては、熱可塑性繊維を10重量%以上、好ましくは、40重量%以上含有する。熱可塑性繊維としては、ポリエチレン、ポリプロピレンなどのポリオレフィン系合成樹脂が最も好ましい。繊維層を形成しフィルム層2を接合するには、メルトブロン繊維を形成しながらフィルム層2に熱融着させるか、予めメルトブロン繊維でウェブに形成したものをフィルム層に熱融着させるか、スパンボンド不織布、メルトボンド不織布、ニードリング不織布のいずれかを熱融着させる。繊維層の態様によっては、レイヨン、アセテート、コットンなどの親水性繊維を、皮膚に湿潤感を与えたり皮膚をあまり濡らさない程度の適宜量、例えば40重量%以下を含有させてもよい。繊維層の坪量は3～30g/m²、繊維径は、可及的に小さいものが好ましいが、複数種の繊維を混用する場合もあることを考慮すると、0.1～100μであり、特に熱可塑性繊維径は0.1～40μであることが好ましい。

【0020】フィルム層2と繊維層3とが接合する面積はそれら層面の30%以上であり、その接合強度はこれら両層からなるシート基材の25mm幅で5g以上であることが好ましい。接合面積が30%未満であると、接合強度が低下して層間剥離するおそれがあるばかりでなく、両層間における空隙率が大きくなってその空隙に体液が滞留してその流動拡散性を低下させることになる。

【0021】

【発明の効果】本発明に係る表面シートは、フィルム層の上面に極細の繊維不織布である繊維層が溶融接合されているシート基材で構成されているから、この表面シートにより、内部に吸液性コアを有する生理用ナプキンや使い捨てオムツなどの衛生物品の表面を形成すると、フィルム層が肌に直接当接する既述の従来技術である表面シートに比較して、繊維布感触に優れることはもちろんのこと、肌との密着面が少なく、肌と表面シート間の通気性や、皮膚呼吸が充分にはかれる。その結果、皮膚にいわゆるベトツキや湿潤感を与えることがなく、ひいては皮膚病の原因を未然に防止することができる。

【0022】また、毛細管を有しその内周面に繊維層が位置している表面シートにおいては、体液を効果的に表面シートから前記物品内部へ導き、繊維層に体液が滞留するのを最少にして繊維層が常に乾燥状態にあるように保つことができる。

【0023】また、毛細管がフィルム層と繊維層とで形成されている表面シートにおいては、毛細管が補強され保形性を発揮するから、衛生物品に適用した場合、毛細管が表面シートと衛生物品の吸液性コアとの間で押しつぶされるようなことが少なく、体液の導入機能を充分に果たすことができる。

PAT-NO: JP410080968A
DOCUMENT-IDENTIFIER: JP 10080968 A
TITLE: SURFACE SHEET FOR HYGIENIC ARTICLE
PUBN-DATE: March 31, 1998

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APPL-NO: JP09196233
APPL-DATE: July 22, 1997

INT-CL (IPC): B32B005/02, A61F013/54 , A61F005/44 , A61F013/15

ABSTRACT:

PROBLEM TO BE SOLVED: To provide a surface sheet for a hygienic article such as a sanitary napkin which gives a comfortable skin touch and high body fluid permeability.

SOLUTION: The surface sheet for a hygienic article such as a sanitary napkin comprises a thermoplastic film layer 2 and a fiber layer 3, containing thermoplastic resin, which is melted and jointed to the upper face of the film layer 2. In addition, openings 4 are arranged, at a specified interval, in the film layer 2 and the fiber layer 3. Further, capillaries 5 extending downward from the lower faces of the film layer 2 and the fiber layer 3, are continuously formed over the peripheral wall of each of the openings 4.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the sheet which forms the front face of these goods with which a wearer's skin contacts at the time of wear of health goods, such as a sanitary napkin and a disposable diaper, in more detail about the surface sheet for health goods.

[0002]

[Description of the Prior Art] Conventionally, in JP,57-17081,B, that by which the taper capillary tube was formed in plastic film at intervals of predetermined is known as a surface sheet of health goods. However, since that material is plastic film, this surface sheet presents film gloss and gives a film feel to the skin. Moreover, while adhering to the skin exactly and giving the so-called smeariness, there are problems, such as barring the permeability between the skin and a surface sheet and skin respiration.

[0003] In JP,55-146738,A, in order to lessen said problem, giving a fibrous appearance to a top face is indicated by making the top face of a surface sheet concave convex, and making an opening pattern irregular etc.

[0004]

[Problem(s) to be Solved by the Invention] The surface sheet currently indicated by JP,55-146738,A does not have a change to the surface sheet and the essential target of JP,57-17081,B in a point made only from plastic film, and there is a limitation in giving a fibrous appearance. Although it can say that an extent success is carried out, a certain thing [giving a film feel to the skin] can also say neither the so-called smeariness nor permeability nor the technical problem about the improvement of skin respiration etc. with still being solved fully to this surface sheet abolishing film gloss, in are and not licking.

[0005] This invention sets it as the main purpose to offer the surface sheet which can solve said problem by arranging opening for penetrating body fluid at intervals of predetermined to these while it welds and compound-izes the fiber layer which contacts the skin on the top face of a thermoplastic film layer.

[0006]

[Means for Solving the Problem] A sheet base material consists of a fiber layer containing the thermoplastic fiber by which fused junction is carried out to the top face of a thermoplastic film layer and this film layer, and this invention concerning the surface sheet for health goods is characterized by to form in said sheet base material the capillary tube which extends from the inferior surface of tongue of said sheet base material to down succeeding the periphery of said opening in the surface sheet for health goods with which opening is arranged at intervals of predetermined.

[0007] The configuration of the point that the point [which has been prolonged so that the point that the point prolonged so that, as for this invention, said capillary tube may become a minor diameter gradually from the end face to the tip, and said capillary tube are prolonged with the diameter of said from the end face to the tip, and said capillary tube may become a major diameter gradually from the end face to the tip], said film layer, and fiber layer has the hydrophilic property is included.

[0008] Moreover, this invention also contains the mode in which said capillary tube is substantially formed only from said fiber layer. Also in the case of this mode, said fiber layer may have the hydrophilic property.

[0009]

[Function] The surface sheet which has said configuration is used in order to form in the interior the front face of the health goods which have an absorbent core. In this busy condition, body fluid penetrates each opening and is absorbed inside health goods. Aeration is made between the skin and a surface sheet and a fiber layer does not bar skin respiration while it contacts without adhering to a wearer's skin exactly and gives a fiber cloth feel. A film layer demonstrates the function which prevents the back flow to the fiber layer of the body fluid absorbed by the absorbent core. In the surface sheet which has the capillary tube currently formed from the film layer and the fiber layer, they reinforce a capillary tube and demonstrate the function to carry out a ** form.

[0010]

[The mode of implementation of invention] It is as follows when the embodiment of the surface sheet concerning this invention is explained referring to a drawing.

[0011] Drawing 1 is the top view of the surface sheet 1, and drawing 2 is the partial expanded sectional view of the surface sheet 1 of drawing 1. The base material of the surface sheet 1 consists of a thermoplastic film layer 2 and a fiber layer 3 containing thermoplastic fiber. While opening 4 is arranged by the sheet base material 2, i.e., a film layer, and the fiber layer 3 at intervals of predetermined, the capillary tube 5 which extends to down succeeding the periphery of opening 4 from the inferior surface of tongue of the film layer 2 and the fiber layer 3 is formed. The capillary tube 5 is formed in the lower limit opening 7 from opening 4 at the taper with which a path becomes small gradually.

[0012] Drawing 3 is a sectional view which shows another mode of the surface sheet 1 and is equivalent to drawing 2. As for the capillary tube 5, from the opening 4 to the lower limit opening 7 is substantially formed in the same path.

[0013] Drawing 4 is a sectional view which shows still more nearly another mode of a surface sheet and is equivalent to drawing 2. The capillary tube 5 is formed in the lower limit opening 7 from opening 4 at the taper with which a path becomes large gradually.

[0014] Each thick twist of the film layer 2 of the rib whose thickness of the peripheral walls 6a and 6b of the film layer 2 which forms the capillary tube 5, and the fiber layer 3 is non-opening of the surface sheet 1, and the fiber layer 3 is also small. moreover, the peripheral walls 6a and 6b of the film layer 2 which forms the capillary tube 5 of drawing 4 are substantially prolonged in the direction of a tube axis in the lower limit opening 7 and its near while they are pressing hard gradually to the lower limit opening 7 -- it has what article of that wrinkling.

[0015] Drawing 5 is a sectional view which shows still more nearly another mode of the surface sheet 1, and is equivalent to drawing 2. The cross-section form of a capillary tube 5 is almost the same as it of drawing 2. However, the capillary tube 5 of drawing 5 is formed mainly from the fiber layer 3, and forms tubing with the film layer 2 short to the inferior-surface-of-tongue this periphery of the opening 4 of the fiber layer 3. The fiber layer 3 in the capillary tube 5 of drawing 5 is also pressing hard gradually to the lower limit opening 7. Although not illustrated, the capillary tubes 5 by the fiber layer 3 may be drawing 3 and the same cross section as it of drawing 4.

[0016] As for the sum total occupancy rate of each opening 4, it is [the width of face of the rib / can set a path to 0.2-2mm, and / die length / (height) / between 0.50-5mm and opening] desirable that it is 0.5-2.5mm the film layer 2 or 30 to 70% of the fiber layer 3.

[0017] As a material of the thermoplastic film layer 2, although polyolefine system synthetic resin, such as polyethylene and polypropylene, is the most desirable, other synthetic resin, for example, polyester, nylon, EVA, etc. can be used. Generally the thickness of a film layer is 7-30micro. The material of a film layer may be made to contain an amount, for example, 0.50 - 1% of the weight of a hydrophilic grant agent, a little, in order to get wet and to make a property larger than that of the fiber layer 3. As this hydrophilic grant agent, CMC, PVA, etc. besides being a polyethylene glycol as a hydrophilic wetting agent etc. can be used.

[0018] Especially the orientation of the fiber of the fiber layer 3 may not be asked, but the orientation may be any of parallel, random, and these mixing. However, if 30% or more of fiber is carrying out orientation in the die-length direction of the surface sheet 1, and the die-length direction of the health goods which will apply a surface sheet if it puts in another way, the inclination body fluid carries out [an inclination] flow diffusion will be strengthened in this direction.

[0019] As a material of the fiber layer 3, thermoplastic fiber is contained 40% of the weight or more

preferably 10% of the weight or more. As thermoplastic fiber, polyolefine system synthetic resin, such as polyethylene and polypropylene, is the most desirable. In order to form a fiber layer and to join the film layer 2, forming melt BURON fiber, heat welding of what was made to carry out heat welding to the film layer 2, or was beforehand formed in the web for melt BURON fiber is carried out to a film layer, or heat welding of a span bond nonwoven fabric, a melt bond nonwoven fabric, or a needling nonwoven fabric is carried out. The proper less than amount of extent which gives a humid feeling to the skin for hydrophilic fiber, such as rayon, acetate, and a cotton, depending on the mode of a fiber layer, or is not ***** well about the skin, for example, 40 % of the weight, may be made to contain. Although a small thing is as much as possible desirable, when 3 - 30 g/m² and the diameter of fiber mix two or more sorts of fiber and the basis weight of a fiber layer takes a certain thing into consideration, it is 0.1-100micro, and as for especially the diameter of thermoplastic fiber, it is desirable that they are 0.1-40micro.

[0020] The area which the film layer 2 and the fiber layer 3 join is 30% or more of these stratification planes, and, as for the bonding strength, it is desirable that it is 5g or more by 25mm width of face of the sheet base material which consists of both [these] layers. The voidage between both layers becomes large, body fluid piles up in the opening, and the flow diffusibility is made bonding strength falls that a plane-of-composition product is less than 30% and there to be not only a possibility of carrying out interlaminar peeling, but to fall.

[0021]

[Effect of the Invention] Since the fiber layer which is a super-thin fiber nonwoven fabric is constituted from a sheet base material by which fused junction is carried out by the top face of a film layer, the surface sheet concerning this invention with this surface sheet If the front face of health goods, such as a sanitary napkin which has an absorbent core, and a disposable diaper, is formed in the interior As compared with the surface sheet which is the conventional technique as stated above in which a film layer contacts the skin directly, not to mention excelling in a fiber cloth feel, there are few faying surfaces with the skin and the permeability between the skin and a surface sheet and skin respiration are fully measured. Consequently, the so-called greasiness or the so-called humid feeling cannot be given to the skin, as a result the cause of a dermatosis can be prevented beforehand.

[0022] Moreover, in the surface sheet with which the fiber layer is located in the inner skin of owner *Perilla frutescens* (L.) Britton var. *crispa* (Thunb.) Decne. in the capillary tube, body fluid can be effectively led to said interior of goods from a surface sheet, and as it makes for body fluid to pile up in a fiber layer into the minimum and a fiber layer is always in dryness, it can maintain.

[0023] Moreover, in the surface sheet with which the capillary tube is formed in the film layer and the fiber layer, since a capillary tube is reinforced and firmness is demonstrated, when it applies to health goods, there is little what a capillary tube is crushed between a surface sheet and the absorbent core of health goods, and it can fully achieve the introductory function of body fluid.

[Translation done.]

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] The top view of the surface sheet which exfoliated in a part of fiber layer.

[Drawing 2] The partial expanded sectional view of drawing 1.

[Drawing 3] The sectional view equivalent to drawing 2 showing another mode.

[Drawing 4] The sectional view equivalent to drawing 2 showing still more nearly another mode.

[Drawing 5] The sectional view equivalent to drawing 2 showing still more nearly another mode.

[Description of Notations]

1 Surface Sheet

2 Film Layer

3 Fiber Layer

4 Opening

5 Capillary Tube

[Translation done.]

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CLAIMS

[Claim(s)]

[Claim 1] Said surface sheet which a sheet base material consists of a fiber layer containing the thermoplastic fiber by which fused junction is carried out to the top face of a thermoplastic film layer and this film layer, and is characterized by forming in said sheet base material the capillary tube which extends from the inferior surface of tongue of said sheet base material to down succeeding the periphery of said opening in the surface sheet for health goods with which opening is arranged at intervals of predetermined.

[Claim 2] The surface sheet according to claim 1 prolonged so that said capillary tube may become a minor diameter from the end face gradually to the tip.

[Claim 3] The surface sheet according to claim 1 with which said capillary tube is prolonged from the end face with the diameter of said to the tip.

[Claim 4] The surface sheet according to claim 1 prolonged so that said capillary tube may become a major diameter from the end face gradually to the tip.

[Claim 5] The surface sheet according to claim 1 with which said film layer has the hydrophilic property.

[Claim 6] The surface sheet according to claim 1 with which said fiber layer has the hydrophilic property.

[Claim 7] Said surface sheet which a sheet base material consists of a fiber layer containing the thermoplastic fiber by which fused junction is carried out to the top face of a thermoplastic film layer and this film layer, and is characterized by forming the capillary tube in said sheet base material in said fiber layer which extends from the inferior surface of tongue of said sheet base material to down succeeding the periphery of said opening in the surface sheet for health goods with which opening is arranged at intervals of predetermined.

[Claim 8] The surface sheet according to claim 7 with which said fiber layer has the hydrophilic property.

[Translation done.]

Patents Act 1977
 Examiner's report to the Comptroller under Section 17
 (The Search report)

17

Application number
 GB 9324472.1

Relevant Technical Fields

(i) UK Cl (Ed.M) D1R (RAA, RBF, RCA, RFQ, RFZ, RGQ, RGZ)

(ii) Int Cl (Ed.5) A61F 13/15; A16L 15/00; B32B 3/24, 5/02; D04H 13/00

Databases (see below)

(i) UK Patent Office collections of GB, EP, WO and US patent specifications.

(ii)

Search Examiner
 ALEX LITTLEJOHN

Date of completion of Search
 27.1.94

Documents considered relevant following a search in respect of Claims :-
 1-7

Categories of documents

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Category	Identity of document and relevant passages		Relevant to claim(s)
A	GB 2180271 A	(KIMBERLY-CLARK) see whole document, especially page 7 lines 51-53 and 81, 82	-
A,P	EP 0545423 A1	(UNI-CHARM) see whole document, especially column 6 lines 29-34	-
A	US 4726976	(KARAMI) see whole document, especially column 4 lines 7-32	-
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